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US N

Listing of Claims:

1.   (Previously Presented) A radiation detector for detecting incident radiation according to a predetermined spectral sensitivity distribution having a sensitivity maximum at a predetermined wavelength λ_0, said radiation detector comprising at least one semiconductor chip and at least one optical filter, wherein

the at least one semiconductor chip comprises at least one III-V semiconductor material; and

the at least one optical filter is disposed outside the at least one semiconductor chip, and the at least one optical filter is configured to receive the incident radiation, to absorb a portion of the incident radiation having a wavelength that is greater than the wavelength λ_0 of the sensitivity maximum, and to transmit filtered radiation to the at least one semiconductor chip.

2.   (Previously Presented) The radiation detector of claim 1, wherein the predetermined spectral sensitivity distribution is a standard sensitivity distribution of a human eye.

3.   (Previously Presented) A radiation detector comprising at least one semiconductor chip and operative to detect incident radiation according to a standard spectral sensitivity distribution of a human eye, wherein the at least one semiconductor chip comprises at least one III-V semiconductor material.

4.   (Previously Presented) The radiation detector of claim 3, further comprising at least one optical filter that is disposed outside the at least one semiconductor chip, wherein the at least one optical filter is configured to receive the incident radiation, to absorb a portion of the incident radiation having a wavelength that is greater than a wavelength λ_0' of a sensitivity maximum of the human eye, and to transmit filtered radiation to the at least one semiconductor chip.

5.   (Previously Presented) The radiation detector of claim 3, wherein the at least one semiconductor chip is an LED chip.

6.   (Previously Presented) The radiation detector of claim 3, wherein a sensitivity distribution of the at least one semiconductor chip exhibits at least one maximum at a wavelength λ_1, and wherein a difference between λ_1 and λ_0' is 50 nm or less.

7.   (Previously Presented) The radiation detector of claim 3, wherein the detector comprises an encapsulation that at least partially surrounds said at least one semiconductor chip.

8.   (Previously Presented) The radiation detector of claim 7, wherein the encapsulation comprises a resin, preferably a reaction resin.

9.   (Previously Presented) The radiation detector of claim 7, further comprising at least one optical filter that is disposed outside the at least one semiconductor chip,
      wherein the at least one optical filter is configured to receive the incident radiation, to absorb a portion of the incident radiation having a wavelength that is greater than a wavelength λ_0' of a sensitivity maximum of the human eye, and to transmit filtered radiation to the at least one semiconductor chip, and
      wherein the at least one optical filter is disposed at least partially inside, outside and/or on the encapsulation and/or the encapsulation forms the at least one optical filter.

10.   (Previously Presented) The radiation detector of claim 4, wherein the at least one optical filter comprises a plurality of filter particles.

11.   (Previously Presented) The radiation detector of claim 3, wherein the at least one semiconductor chip comprises a filter layer.

12.   (Previously Presented) The radiation detector of claim 11, wherein the filter layer absorbs radiation having a wavelength that is smaller than λ_0'.

13.   (Previously Presented) The radiation detector of claim 3, wherein the radiation detector has a detector sensitivity such that at an arbitrary wavelength, a difference between corresponding values of the detector sensitivity and the standard spectral sensitivity distribution of the human eye is less than 40%.

14.   (Previously Presented) The radiation detector of claim 3, wherein the at least one III-V semiconductor material is $In_xGa_yAl_{1-x-y}P$, and wherein $0 \leq x \leq 1$, $0 \leq y \leq 1$ and $x + y \leq 1$.

15.   (Previously Presented) The radiation detector of claim 5, wherein a central emission wavelength of the LED chip is in an infrared region of the spectrum.

16-21. Canceled.

22.   (Previously Presented) The radiation detector of claim 6, wherein the difference between λ_1 and λ_0' is 15 nm or less.

23.   (Previously Presented) The radiation detector of claim 11, wherein the filter layer extends over an entire face of the at least one semiconductor chip.

24.   (Previously Presented) The radiation detector of claim 13, wherein the difference between corresponding values of the detector sensitivity and the standard spectral sensitivity distribution of the human eye is less than 25%.

25.   (Previously Presented) The radiation detector of claim 3, wherein the radiation detector is configured for use as an environmental light sensor.

26.   (Previously Presented) The radiation detector of claim 1, wherein the at least one semiconductor chip is an LED chip.

27.   (Previously Presented) The radiation detector of claim 1, wherein a sensitivity distribution of the at least one semiconductor chip exhibits at least one maximum at a wavelength λ_1, and wherein a difference between λ_1 and λ_0 is 50 nm or less.

28.   (Previously Presented) The radiation detector of claim 27, wherein the difference between λ_1 and λ_0 is 15 nm or less.

29.   (Previously Presented) The radiation detector of claim 1, wherein the at least one semiconductor chip comprises a filter layer.

30.   (Previously Presented) The radiation detector of claim 29, wherein the filter layer absorbs radiation having a wavelength that is smaller than λ_0.

31.   (Previously Presented) The radiation detector of claim 1, wherein the at least one III-V semiconductor material is $In_xGa_yAl_{1-x-y}P$, $In_xGa_yAl_{1-x-y}N$, or $In_xGa_yAl_{1-x-y}As$, and wherein $0 \le x \le 1$, $0 \le y \le 1$ and $x + y \le 1$ for the at least one semiconductor material.

32.   (Previously Presented) A radiation detector for detecting incident radiation according to a predetermined spectral sensitivity distribution having a sensitivity maximum at a predetermined wavelength λ_0, the detector comprising:

       at least one semiconductor chip comprising a filter layer and at least one III-V semiconductor material; and

       at least one optical filter disposed outside the at least one semiconductor chip,

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wherein the at least one optical filter is configured to receive the incident radiation, to absorb a portion of the incident radiation having a wavelength that is greater than the wavelength λ_0 of the sensitivity maximum, and to transmit filtered radiation to the at least one semiconductor chip.